prove that:force=mass*acceleration

Answer

Newton's 2nd law of motion states that the net force acting on a system is directly proportional to rate of change of momentum of the system. We can write, $\vec{F} = \frac{d\vec{p}}{dt}$ where, p is the momentum. Now we have, momentum, $\vec{p} = m\vec{v}$ where, m is mass and v is the velocity. Hence $\vec{F} = m\frac{d\vec{v}}{dt}$. Now, acceleration is defined as the rate of change of velocity, $\vec{a} = \frac{d\vec{v}}{dt}$. Thus, $\vec{F} = m\frac{d\vec{v}}{dt} = m\vec{a}$ or Force = mass * acceleration.